(19) JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: **05267198 A**

(43) Date of publication of application: **15.10.93**

(51) Int. Cl **H01L 21/205**
C30B 25/02
C30B 25/14
C30B 29/40

(21) Application number: **04181251**

(22) Date of filing: **08.07.92**

(30) Priority: **12.07.91 JP 03172013**

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(54) CRYSTAL GROWTH METHOD FOR COMPOUND SEMICONDUCTOR

(57) Abstract:

PURPOSE: To provide a crystal growth method which controls single atom layer and allows growth of compound semiconductor crystal of good quality.

CONSTITUTION: A suscepter 8 on which a base crystal 9 is mounted is put in a quartz reaction tube 1. The suscepter 8 which is made of graphite is supported by a supporting rod 11, and the rod is movable vertically between a sample preparatory chamber 13 and the place of crystal growth through a gate valve 12, airtightness being maintained by a bellows 14. An RF coil 2 is disposed around the outer periphery of growth position. A gas supply part 15 and a manifold 5 for supplying multiple gases 6 by switching are connected to the lower part of reaction tube. An exhausting device 3 for material gas and a pressure adjusting valve 4 are connected to the upper part of the tube. In material gas generated by diluting trimethy lindium with hydrogen is flown for 15 seconds together with hydrogen at a specified flow rate over an InAs base crystal 9 heated to 300-450°C, and then exhausted. Then, AsH_3 is diluted with hydrogen and flown at a specified rate, and then exhausted. Gas supplying is performed in repetition and in the order of In, hydrogen, As and hydrogen, for InAs crystal growth, while mixing of both materials is prevented.